

Robotics Course Notes

The below questions summarize the content of the course before midterm exam

Review Questions

1. Define a Robot.
2. Discuss the advantages and disadvantages of using robots in industry.
3. Compare hard automation with soft automation.
4. Discuss the impact of robotic induction on direct labor.
5. What are various types of reference frames attached to a robot? Explain
6. Briefly discuss the various robot components.
7. Mention 4 types of robot configurations (arrangements), explain with drawings.
8. What are the performance parameters? Define repeatability, resolution and accuracy.
9. Define the term: Robot Kinematics
10. Define the term: Degree of Freedom (DOF)
11. Define the term: Robot Configuration
12. Define the term: Workspace
13. Differentiate between robot forward kinematics and robot inverse kinematics.

Solution of Review Questions

1. Industrial Robotics Reference, chapter 1, section 2 (page 1 in reference)
2. Industrial Robotics Reference, chapter 1, section 5 (page 5 in reference)
3. Industrial Robotics Reference, chapter 1, the table in section 3 (page 3 in reference)
4. Industrial Robotics Reference, chapter 1, section 7 (page 9 in reference)
5. Industrial Robotics Reference, chapter 1, section 10 (pages 11,12 in reference)
6. Industrial Robotics Reference, chapter 1, section 10 (page 16 in reference)
7. Industrial Robotics Reference, chapter 1, section 10 (pages 13, 14, 15 in reference)
8. Industrial Robotics Reference, chapter 2, section 9 (Definitions only)
- Questions from 9 to 13 can be solved depending on your section notes

Examples

- Industrial Robotics Reference, Chapter 3
 - Examples 3.1 to 3.19 (starting from page 72 in reference)
 - Note: Solutions in the reference are not always true